REMARKS

A total of 37 claims remain in the present application. The forgoing amendments are presented in response to the Advisory Action mailed May 23, 2007, wherefore reconsideration of this application is requested. By way of the foregoing amendments, independent claims 1, 19 and 24 have been amended to define that the processor includes a correlator for calculating a correlation between the predetermined initial polarization state and the detected polarization state. Consequential amendments have been effected in claims 16, 18, 20-23, 29, 31, 35, 36 and 38 to reflect the revisions made in claims 1, 19 and 24, and further to remove the term "adapted to" from the claims. Referring to the text of the Final Office Action mailed March 8, 2007:

- Figure 2 has been objected to as allegedly failing to identify the subject matter thereof as prior art;

- claims 1, 3-5, 8-14, 17, 19-24, 26-28, 30-34 and 37 stand rejected under U.S.C. § 103(a), as being unpatentable over the teaching of United States Patent Application Publication No. 2002/0149823 (Bergano et al.) in view of admitted prior art (APA) represented by figure 2 and paragraphs 0036 and 0038 of the specification;

- claims 6, 7, 15, 16, 18, 29, 35, 36 and 38 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Advisory action appeared to modify the Examiner's position with respect to figure 2, insofar as the Examiner asserted that "the rejections rely on the part of fig. 2 that is admitted to as old (admitted to for fig. 2 in specification paragraph 0036; later admitted to for fig. 2)". In other respects, however, the Examiner maintained his rejections as set out in the Final Action.

Applicant appreciates the Examiner's indication of allowable subject matter in claims 6, 7, 15, 16, 18, 29, 35, 36 and 38. The Examiner's objections to Figure 2, and claim rejections

under 35 U.S.C. §103(a) are believed to be traversed by way of the foregoing amendments, and further in view of the following discussion.

Objections to the Figures

In the Advisory Action, Examiner appeared to admit that FIG. 2 shows some elements that are admitted prior art (in paragraph 36 of the specification, and Applicants comments of December 1, 2006), and other elements are not. In particular, the Examiner asserted that "the rejections rely on the part of fig. 2 that is admitted to as old (admitted to for fig. 2 in specification paragraph 0036; later admitted to for fig. 2)." Accordingly, Applicant believes that the objections to FIG. 2 have been traversed. At least some elements shown in FIG. 2 are not prior art, and thus FIG. 2 should properly not be labelled as "Prior Art".

Favourable reconsideration and withdrawal of the Examiner's objection to FIG. 2 is believed to be in order, and such action is courteously requested.

Rejections under 35 U.S.C. §103(a)

Bergano teaches that a square-wave modulation signal is used to switch the polarization of a transmitted optical signal between two orthogonal states (P1 and P2). As such, it follows that when the optical power on P1 is a maximum, the optical power on P2 will be zero, and vis-versa. According to the Final Action, it would allegedly be obvious to use the polarization detector 18 of fig 2 to detect the polarization state, in place of Bergano's photodetector 406, and "to measure the received powers of the received PI and P2 polarization components of the signal of Bergano, based on the teaching of APA, in order to evaluate the PDL using the predetermined initial polarization state and the detected polarization state, as suggested by Bergano's disclosure of the effect of PDL on the polarization state of a transmitted signal.".

However, recall that Bergano's signal switches between P1 and P2 states, so that when P1 is a maximum, P2 is zero. Consider a scenario in which the P1 and P2 polarizations received at the receiver are aligned with the polarization beam splitter 24 of Applicant's polarization detector 18. In such a case, the output of the multiplier 30 of polarization detector

18 will be constant at zero (since P1x0=0, and 0xP2=0), and so no polarization information can be obtained.

Now consider the alternative scenario, in which the received P1 and P2 polarizations are not aligned with the polarization beam splitter 24. In this case, the respective electrical signals output by each of the two photodetectors 28 will contain energy from both of the received P1 and P2 polarizations. In effect, the respective outputs of both of the two photodetectors 28 will suffer the same limitation as that produced by Bergano's single photodetector 406, in that they are amplitude modulated signals that contain the results of PDL but there is no way to identify whether the signal level at any particular instant corresponds to a transmitted P1 state, or a transmitted P2 state. Multiplying the two signals together in multiplier 30 does not resolve the problem. In fact, the multiplier 30 will produce another amplitude modulated signal, which in this case is indicative of the proportionality ratio between the two photodetector output signals, but again provides no way of determining whether the signal level at any particular instant corresponds to a transmitted P1 state, or a transmitted P2 state.

Thus it will be seen that use of Applicant's polarization detector 18 in the system of Bergano et al. does not provide any new information beyond that provided by Bergano et al. alone. More specifically, the output of both Applicant's polarization detector 18 and Bergano's photodetector 406 is an amplitude modulated signal that contains the results of polarization-induced changes, but it does not contain sufficient information to enable determination of the PDL that produced those changes.

The present invention overcomes this limitation providing methods and systems in which a correlation is calculated between the initial and detected polarization states, and the PDL determined from the correlation result. Bergano et al. clearly do not attempt to do this. Rather, Bergano et al. teach that the PDL is empirically estimated by inserting optical elements into the link, and analysing the resulting changes in the photodetector output. Bergano et al. do not use any information of the initial polarization state in this process, and no attempt is made to calculate a correlation between the initial and detected polarization states.

Accordingly, it is believed that the present invention is clearly distinguishable over the teaching of the known prior art, taken alone or in any combination.

If any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this response, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 19-5113.

Respectfully submitted,

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